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ABSTRACT

Previous research has shown that Type As appraise their jobs as more demanding than do Type Bs, yet few studies have measured actual job demands. This prospective, observational study of police radio dispatchers (N=72) examined Type A behavior as a predictor of source of work demands, volume of work activity, whether work begun was finished, and attention to more than one activity at a time. Subjects completed the Jenkins Activity Survey-Form C as a measure of the Type A pattern, and provided information on sex, age, education, and job tenure. Trained researchers sat in the same room with one focal subject and recorded information continuously. Hierarchical regression revealed that two components of the broader Type A pattern, hard-driving competitiveness and job involvement, were better predictors of job demands and work activity than was the global A score. Results support an interactional perspective in that Type As relative to Type Bs received more externally imposed demands from sources such as superiors or peers; yet those same Type As also generated more demand by initiating work tasks for themselves and attending to multiple tasks simultaneously. (NB)

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Job Demands, Productivity, and Type A Behavior: An Observational Analysis[1]

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Job Demands, Productivity, and Type A Behavior: An Observational Analysis

Abstract

Previous research has shown that Type As appraise their jobs as more demanding than do Type Bs, yet few studies have measured actual job demands. This prospective, observational study police radio dispatchers (N = 72) examined Type A behavior as a predictor of source of work demands, volume of work activity, whether work begun was finished, and attention to more than one activity at once. Hierarchical regression revealed that two components of the broader Type A pattern, hard-driving competitiveness and job involvement, were better predictors of job demands and work activity than was the global A score. Results support an interactional perspective in that Type As relative to Type Bs received more externally imposed demands from sources such as superiors or peers; yet these same Type As also generated more demand by initiating work tasks for themselves and attending to multiple tasks simultaneously.

The Type A behavior pattern--characterized by ambitiousness, hostility, impatience, and competitiveness--is predictive of the likelihood and severity of coronary heart disease (Matthews & Haynes, 1986). In addition to the importance of the Type A pattern as an epidemiological construct, overt manifestations of this pattern--excessive vocational dedication and career striving, preoccupation with work and deadlines, chronic feelings of time pressure, impatience with slowness, concentrating on more than one activity at once, and evaluation of the worthiness of one's activities in terms of numbers--have implications for job performance and productivity (Jenkins, 1975; Matthews, 1982).

The aim of this prospective, observational study was to provide data on the Type A pattern and actual behavior in a work organization and to determine the extent to which Type A tendencies predict employee differences in (a) volume of work demands and (b) productivity. Despite consistency in finding that Type As, relative to Type Bs, report being overloaded, little is known about their objective work demands (Burke & Weir, 1980; Burke, Weir, & DuWors, 1979; Howard, Cunningham, & Rechnitzer, 1977; Kelly & Houston, 1985). Previous research has relied on self-report instruments, making it impossible to determine the extent to which the objective reality matches the subjective appraisal. Furthermore, the origins of any differences in work load have not been examined. It is possible that Type As do not simply respond to the demands of their environments, but rather create the work demands that they later appraise as overloading (Smith & Anderson, 1986; Smith & Rhodewalt, 1986). If so, the Type A pattern may represent "an ongoing process of challenge and demand-engendering behavior" (Smith & Anderson, 1986, p. 1168). Thus, a central research question we addressed was, how much of the Type A's quantitative overload is externally imposed and how much is self-imposed?

With regard to productivity, little research has been done on the effects

of the Type A pattern. In one such investigation, Matthews, Helmreich, Beane, and Lucker (1980) found that the Type A pattern was related to the quantity of work done, specifically, scientific publication rates of social psychologists. Yet research evidence on occupational achievement and productivity is only suggestive since researchers have typically measured the Type A pattern after rather than before performance, thereby making it impossible to determine whether Type A behavior is an antecedent or a consequence.

Following the above rationale, we examined two hypotheses. In the first, we hypothesized that the work activities of Type As relative to Type Bs are more likely to be initiated by themselves rather than externally imposed. Our second hypothesis was that compared to Type Bs, Type As are more productive. Specifically, we expected them to engage in more job relevant and fewer job irrelevant activities. Based on the observation that Type As tend to be preoccupied with work and deadlines and prefer to concentrate on more than one activity at once (Jenkins, 1975; Matthews, 1982), we also expected Type As to finish more of their work activities and more often work on two or more activities simultaneously.

Method

Subjects

The subjects of were 72 full-time, nonsupervisory police radio dispatchers at 12 police stations located in rural and urban communities throughout eastern New York state. Subjects were randomly selected from the personnel rosters of their stations. The percentage of employees at each station who volunteered ranged from 85% to 100%.

Procedure

Prior to data collection, a researcher met with employees individually and privately to solicit their voluntary participation. After signing the consent agreement, subjects provided information on their sex, age, education, and job

tenure, and completed the Jenkins Activity Survey-Form C (JAS) as a measure of the Type A pattern (Jenkins, Zyzanski, & Rosenman, 1979).

On each day of observation, one trained researcher sat in the same room with one focal subject and recorded information continuously. The observer entered into a small, handheld electronic digital recorder the duration and characteristics of all activities (Observational Systems, Inc., O.S. MORE/ODAP Data Collection System).

JAS scales. Type A pattern can be assessed using either the Structured Interview (SI; Rosenman, 1978) or the JAS, a self-report questionnaire. Although the SI appears to be a better predictor of CHD than the JAS, the JAS was the more appropriate instrument in the present study since it allowed assessment of psychological processes--for example, job involvement and competitiveness--that may underlie Type A behavior (Smith & Rhodewalt, 1986). The 52 items of the JAS were scored on four scales: The Type A scale, which is a measure of the coronary-prone behavior pattern, and three factorially independent subscales (Factor S, speed and impatience; Factor J, job involvement; Factor H, hard-driving competitiveness) measuring components of the broader Type A construct (Jenkins et al., 1979).

Observations: Categories and Observer Agreement

Each discrete activity of the focal subject was coded; codes for each activity were mutually exclusive and exhaustive. All activities were classified as either work or nonwork. Work encompassed prescribed tasks such as processing or documenting police radio, telephone, or computer teletype communications; talking about past, present, or future job responsibilities; and complying with a request from a supervisor. Nonwork applied to job-irrelevant actions, for example, drinking coffee or reading the newspaper. Activities were further categorized by (a) source of initiation (i.e., self-initiated or other-initiated), (b) participants (i.e., public, peer,

superior), (c) completion (i.e., completed or left unfinished), and (d) simultaneity (i.e., whether the activity was processed simultaneously with one or more other work activities.

From the information on work and nonwork activities, five measures of work demands were computed (viz., self-initiated, other-initiated, public-initiated, peer-initiated, and superior-initiated) as well as four measures of productivity (viz., work volume, nonwork volume, finished work, and simultaneity). For each category, a rate per hour of observation was computed.

Agreement was calculated with the statistic kappa (Hartmann, 1977), which corrects the proportion of agreements for chance or expected agreements. The mean kappa for the nine categories of job demands and productivity ranged from a low of .82 to a high of .90. All kappas were well above the minimum .60 recommended by Hartmann (1977).

Results

The Type A pattern were related to job demands but in ways not entirely consistent with prediction: Although subjects higher in two components of the Type A pattern, hard-driving competitiveness and job involvement, more often generated work for themselves, the global Type A score did not predict the volume of self-initiated work (for Factor H, $\underline{r}(70) = .28$, $\underline{p}<.05$; for Factor J, $\underline{r}(70) = .32$, $\underline{p}<.01$). More extreme Type As received more externally-generated demands, $\underline{r}(70) = .27$, $\underline{p}<.05$, and this relationship held especially for those who were higher in job involvement, $\underline{r}(70) = .30$, $\underline{p}<.01$. With regard to productivity, simple correlations provided support for the hypothesis that the Type A pattern predicts the volume of work activity. More extreme Type As, particularly those higher in hard-driving competitiveness and job involvement, engaged in more work activities per hour and finished more work per hour (for Type A, $\underline{r}(70) = .25$, $\underline{p}<.05$). Additionally, more extreme Type As (and those higher in job involvement) more often worked on two or more

tasks simultaneously (for Type A, $r(70) = .23$, $p<.05$).

Taken together, these findings suggest that the Type A pattern makes a modest contribution to work demands and productivity. The Type A score or component scores were significantly related to each of the behavioral measures with one exception, viz., nonwork activity. However, these findings must be considered preliminary in that some bivariate relations were confounded with differences in job tenure. For this reason, the multivariate analyses that follow controlled for job tenure.

Using multivariate analysis of variance (MANOVA), we tested the Type A pattern's overall effect on two sets of dependent variables, namely, (a) four work demand variables (excluding the composite variable of other-initiated work) and (b) four productivity variables. Two separate between-subjects MANOVAs were performed, one for each dependent variable set; each incorporated two levels of Type A behavior (based on a median-split of the A scale score distribution) and job tenure as a covariate. Overall MANOVAs revealed a nonsignificant main effect for the A factor. The global Type A score did not predict work demands or productivity.

To examine the possibility that the components of the Type A pattern affected behavior even though the global score was nonsignificant, two additional between-subjects 2 X 2 X 2 (Factor H X Factor S X Factor J) MANOVAs were performed. In each analysis, the Type A factor scores were dichotomized and job tenure was used as a covariate. These analyses yielded consistently significant results. For job demand variables, the overall MANOVA revealed significant main effects for job involvement, $F(4, 60) = 4.67$, $p<.003$, and hard-driving competitiveness, $F(4, 60) = 6.44$, $p<.001$; no significant effect was found for speed and impatience. The overall MANOVA for productivity revealed a significant main effect for job involvement, $F(4, 60) = 2.79$, $p<.05$; a marginally significant effect for competitiveness, $F(4, 60) =$

2.32, $p<.07$; and a nonsignificant speed and impatience effect.

Rather than using univariate analysis of variance to examine the effect of the Type A components on individual dependent variables, we chose hierarchical multiple regression, which enabled us to avoid dichotomizing the Type A factor scores and test the significance of the increment in R^2 gained from adding all three factor scores to the equation containing job tenure as a control variable. These analyses yielded consistently significant results; findings are presented in Table 1. The incremental gain accruing from the addition of the three components of the Type A ranged upward from a low of 6% to a high of 24%.

Insert Table 1 about here

Effects of the components of Type A behavior on work demands were consistent with prediction: Factor scores significantly predicted higher rates of self-initiated work and did not contribute significantly to the overall volume of external demands. Despite the absence of a relationship to overall volume of external demand, Type A factor scores predicted the volume of requests received from superiors, peers, and the public. Type A factor scores accounted for more variance (24%) in work requests received from superiors than in any other category of behavior.

Type A components also consistently predicted measures of productivity. Hierarchical regression analyses revealed that the three factor scores jointly accounted for an additional 12% of the variance in the overall volume of work beyond job tenure and 11% of additional variance in both the rates at which subjects finished their work and dealt with tasks simultaneously. Only nonwork activity was not predicted by the Type A components.

Which of the particular components of Type A behavior predicted job

demands and productivity can be identified from the significance of standardized regression weights presented in Table 1. The relationship of Type A behavior to work demands varied by source (i.e., self, public, peer, superior) and Type A component (i.e., job involvement and hard-driving competitiveness). With regard to productivity, only one Type A component, i.e., job involvement, had a consistent and positive effect.

Discussion

Although previous research has demonstrated an association between the Type A pattern and long-term career success (Matthews et al., 1980; Mettlin, 1976), the present findings suggest that Type A behavior is predictive of day-to-day demands in job environments and behavioral responses to such demands. A central finding was that the Type A components behave differentially in relation to demands and productivity. Of the Type A components, job involvement and competitiveness were significant predictors, whereas speed and impatience was generally not significant. Highly job involved subjects initiated more work, engaged in more work overall (self- and other-initiated combined) and less nonwork activity, and more often divided their attention between two or more tasks. These findings provide support for Smith's (Smith & Anderson, 1986; Smith & Rhodewalt, 1986) assertion that Type As systematically construct more demanding work environments.

While the Type A pattern did not predict the overall volume of externally-imposed demand, its components did predict the source of such demands. Yet Type A components had opposite effects on each source. Highly job involved subjects were the targets of more initiations from the public and their peers, whereas driven and competitive subjects received fewer such initiations. From superiors, job involved subjects received fewer initiations yet those high in competitiveness received more.

One result of this lack of consistency in the magnitude and direction of

component effects was that the global A score failed to predict demands or performance. When combined into a single index of Type A behavior the opposing effects of the job involvement and competitiveness components cancelled one another. Thus, findings suggest that as an antecedent of demand and performance, the Type A pattern is not a unitary construct.

The observed divergence of Type A components in the prediction of job behavior is consistent with research showing that components of pattern A are also not equally predictive of physiological reactivity or CHD incidence (Dembroski et al., 1978; Matthews et al., 1977). Although sufficient data are not yet available to determine conclusively which Type A components are coronary-prone (Matthews & Haynes, 1986), previous research has implicated competitiveness as especially important (Jenkins, Zyzanski, & Rosenman, 1971; Kenigsberg, Zyzanski, Jenkins, Wardwell, & Licciardello, 1974; Matthews et al., 1977).

Whatever the health costs of the Type A pattern, it appears to be instrumentally valuable in achieving success. More extreme Type As achieve higher college grades and more academic honors as well as more rapid career advancement (Mettlin, 1976; Waldron et al., 1980). If Type As attribute their success to their driven and competitive behavioral style, this belief may serve as an obstacle to effective clinical treatment (Roskies, 1983).

In sum, this study identified job behaviors of Type As that may increase their vulnerability to overload in actual work environments, while at the same time enhancing their prospectives for career attainment. From a practical standpoint, pinpointing such job behaviors is a first step toward the goal of maximizing benefits of the Type A behavioral style for productivity while alleviating its costs in terms of stress and coronary heart disease.

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Regression of JAS Factor Scores on Measures of Job Behavior

Dependent Variable	R^2_1 [a]	R^2_2 [b]	Increment to R^2	Incremental F	Beta Factor H	Beta Factor S	Beta Factor J
Job Demands							
Self-initiated	.017	.197	.180	5.01**	.18	-.25*	.25*
Other-initiated	.109	.170	.061	1.64	.09	.11	.18
From public	.024	.162	.138	3.68*	-.26*	.15	.34**
From peer	.028	.144	.116	3.03*	-.31**	.11	.26*
From superior	.000	.243	.243	6.96**	.51***	-.09	-.26*
Productivity							
Work volume	.099	.217	.118	3.37*	.16	-.04	.26*
Nonwork volume	.002	.077	.075	1.81	.20	.09	-.27*
Simultaneity	.055	.165	.110	2.94*	-.01	.13	.32**
Finished work	.052	.165	.113	3.02*	.25*	.02	.16

[a] To compute R^2_1 the control variable, job tenure, was used to predict the criterion.

[b] To compute R^2_2 job tenure and JAS scores for Factor H, Factor S and Factor J were used as predictors.

*$p<.05$. **$p<.01$.